49321-120.ST25.txt SEQUENCE LISTING

<110>	Mose Nels Frui King Jel:	es, son, n, K g, J inek sch,	Ashl Jay laus	ee ura		ence	. Uni	vers	ity							
<120>	MET VIR	HODS	OF INDUC	TREA	ATMEI	NT AI ULAR	ND D	IAGNO E SEO	OSIS QUEN	USII CES	NG MO	DUL	ATOR	S OF		
<130>	493	21-	L20		•											
<140> <141>		4-04	4-15													
<150> <151>		•	-	694												
<150> <151>			533, 2-29													
<160>	17															
<170>	Pat	tent	In 'v	ersi	on 3	3.2										
<210><211><211><212><213>	12: DN:	A	sapie	ens												·
<220> <221> <222>	CD		. (104	14)												
<400> tttcc	· 1 :cgag	ja t	cacc		atg Met 1	ctg Leu	ggc	gcc Ala	gag Glu 5	tgg Trp	agc Ser	aag Lys	ctg Leu	cag Gln 10	cca Pro	51
acg g Thr G	3lu I	jys	Gln .	Arg	Tyr	ctg Leu	Asp	gag Glu 20	gcc Ala	gag Glu	aga Arg	gag Glu	aag Lys 25	cag Gln	cag Gln	99
tac a Tyr N	Met 1	aag Lys 30	gag Glu	ctg Leu	cgg Arg	gcg Ala	tac Tyr 35	cag Gln	cag Gln	tct Ser	gaa Glu	gcc Ala 40	tat Tyr	aag Lys	atg Met	147
tgc (Cys '	acg of Thr (gag Glu	aag Lys	atc Ile	cag Gln	gag Glu 50	aag Lys	aag Lys	atc Ile	aag Lys	aaa Lys 55	gaa Glu	gac Asp	tcg Ser	agc Ser	195
tct Ser 60	gly aaa	ctc Leu	atg Met	aac Asn	act Thr 65	ctc Leu	ctg Leu	aat Asn	gga Gly	cac His 70	aag Lys	ggt Gly	gjå aaa	gac Asp	tgc Cys 75	243
gat Asp	ggc	ttc Phe	tcc Ser	acc Thr 80	ttc Phe	gat Asp	gtt Val	ccc	atc Ile 85	ttc Phe	act Thr	gaa Glu	gag Glu	ttc Phe 90	ttg Leu	291

Page 1

49321-120.ST25.txt

								gag Glu 100								339
aat Asn	gtg Val	gcc Ala 110	ttc Phe	gag Glu	gag Glu	cag Gln	aac Asn 115	gcg Ala	gta Val	ctg Leu	cag Gln	agg Arg 120	caa Gln	aac Asn	gca Ala	387
								tct Ser								435
								gca Ala								483
Gly	gct Ala	cac His	cgc Arg	cag Gln 160	ctt Leu	cgc Arg	ctc Leu	act Thr	gcc Ala 165	ggt Gly	gcc Ala	gjå aaa	cac His	999 Gly 170	cga Arg	531
								ctt Leu 180								579
			Āla					gca Ala								627
		Asn						cag Gln				Val			gjå aaa	675
	Ala										Arg				acc Thr 235	723
					Glu					Pro					tcc Ser	771
				Lev					Pro					Phe	tgc Cys	819
			Lev					ı Pro					Pro		a aaa 1 Lys	867
		ıĀla					Gli					r Āla			gcc Ala	915
	Pro			-	_	Thi	_			~~	/ Se				c ccc s Pro 315	963
					1 Thi					Se:					c ccc p Pro 0	1011
								t gtg a Va	l Pr			caca	cagg	aag	ctgcctt	1064

Page 2

49321-120.ST25.txt

335 340

gtggggactt acctggggtg tcccccgcat gcctgtaccc cagatgggtg ggggccggct 1124
ttgcccatcc tgctctcctc cagccgaggg accctggtgg gggtggctcc ttctcactgc 1184
tggatccgga ctttttaaat aaaaacaagt aaaatttgtg ttttaaaa 1232

<210> 2

<211> 341

<212> PRT

<213> Homo sapiens

<400> 2

Met Leu Gly Ala Glu Trp Ser Lys Leu Gln Pro Thr Glu Lys Gln Arg
1 10 15

Tyr Leu Asp Glu Ala Glu Arg Glu Lys Gln Gln Tyr Met Lys Glu Leu 20 25 30

Arg Ala Tyr Gln Gln Ser Glu Ala Tyr Lys Met Cys Thr Glu Lys Ile 35 40 45

Gln Glu Lys Lys Ile Lys Lys Glu Asp Ser Ser Gly Leu Met Asn 50 55 60

Thr Leu Leu Asn Gly His Lys Gly Gly Asp Cys Asp Gly Phe Ser Thr 65 70 75 80

Phe Asp Val Pro Ile Phe Thr Glu Glu Phe Leu Asp Gln Asn Lys Ala 85 90 95

Arg Glu Ala Glu Leu Arg Arg Leu Arg Lys Met Asn Val Ala Phe Glu 100 105 110

Glu Gln Asn Ala Val Leu Gln Arg Gln Asn Ala Glu His Glu Gln Arg 115 120 125

Ala Arg Ala Ser Gly Ala Gly Ala Gly Ala Gly Ala Glu Asp Ala 130 135 140

Gly Ala Ala Ala Ala Pro Gly Arg Ala Pro Gly Ala His Arg Gln 145 150 155 160

Leu Arg Leu Thr Ala Gly Ala Gly His Gly Arg Asn Ala His Ala Gly 165 170 175

His Ser Gly Leu Leu His Gly Pro Ala Ser Arg Ser His Arg Ala Arg 180 185 190

49321-120.ST25.txt

Pro	Arg	Pro 195	Ala	Arg	Glu	Ala	His 200	Arg	Pro	His	Gln	Gly 205	Asn	Pro	Gly	
Pro	Gly 210	Arg	Gln	Arg	Ala	Pro 215	Val	Arg	Ser	Gly	Arg 220	Ala	His	Asp	Ala	
Glu 225	Glu	Lys	Leu	Trp	Ala 230	Arg	Pro	Сув	His	Thr 235	Pro	Pro	Arg	Gly	Arg 240	
Glu	Ala	Gly	Gly	Pro 245	Pro	Phe	Gly	Ala	Trp 250	Ser	His	Pro	Ala	Pro 255	Leu	
Gly	Ala	Pro	Ala 260		Leu	ГÀЗ	Leu	Asn 265	Phe	Сув	Ser	Ile	Pro 270	Leu	Ala	
Phe	: Asn	Leu 275		Ser	Pro	Leu	Asn 280	Pro	Glu	Lys	Ala	Leu 285		Ala	Arg	
Туг	Thr 290		Lys	Asn	Leu	Thr 295		. Glu	Gly	Ala	. Pro		Arg	Arg	Thr	
Ala 30!		r Arg	J Tyr	Thr	Gly 310		Pro	o Gly	His	315		ı Asp	Thr	Gly	Gln 320	
Th	r Lyi	s Pro	o Thi	2 Pro		Th:	Arg	g Glr	a Asp 330) Pro	o Ası	туг	Ser 33!	Leu 5	
Ar	g Gl	y Ala	a Vai		o											
<2 <2	10> 11> 12> 13>	3 387 DNA Hom		pien	s											
<2	20> 21> 22>	CDS	9)	(164	2)											
<4 Ca	.00>	3 Igaca	tac	agga	ttt	aaga	agco	ca t	catg	ıgaga	a ga	acctt	caat	tac	agagata	60
															Igagtgag	120
ct	gctt	ctga	a ctc	gatt	aaa	aagg	gagt	ga g	rccat	aact	g go	egget	gcto	: ttt	cgcca	178
at Me 1	et Se	gc ct er Le	eu Pi	cc as co As 5	at to sn Se	c to er Se	er Cy	gc ct ys Le	c tteu Le	eu Gl	aa ga lu As	ac aa sp Ly	ag at ys Me	g to	gt gag vs Glu S	220
a	ac aa	ac aa	acrac	cc ac	ct at	ca ad	cc ,ac	ac co	cc ca	ag ct	g at	tg c	cc ct	g gt	g gtg	27

Page 4

~

II" Hand to a Hear ware ...

49321-120.ST25.txt Gly Asn Lys Thr Thr Met Ala Ser Pro Gln Leu Met Pro Leu Val Val 322 gtc ctg agc act atc tgc ttg gtc aca gta ggg ctc aac ctg ctg gtg Val Leu Ser Thr Ile Cys Leu Val Thr Val Gly Leu Asn Leu Leu Val 370 ctg tat gcc gta cgg agt gag cgg aag ctc cac act gtg ggg aac ctg Leu Tyr Ala Val Arg Ser Glu Arg Lys Leu His Thr Val Gly Asn Leu tac atc gtc agc ctc tcg gtg gcg gac ttg atc gtg ggt gcc gtc gtc Tyr Ile Val Ser Leu Ser Val Ala Asp Leu Ile Val Gly Ala Val Val 418 70 466 atg cct atg aac atc ctc tac ctg ctc atg tcc aag tgg tca ctg ggc Met Pro Met Asn Ile Leu Tyr Leu Leu Met Ser Lys Trp Ser Leu Gly cgt cct ctc tgc ctc ttt tgg ctt tcc atg gac tat gtg gcc agc aca 514 Arg Pro Leu Cys Leu Phe Trp Leu Ser Met Asp Tyr Val Ala Ser Thr 105 gcg tcc att ttc agt gtc ttc atc ctg tgc att gat cgc tac cgc tct 562 Ala Ser Ile Phe Ser Val Phe Ile Leu Cys Ile Asp Arg Tyr Arg Ser 120 gtc cag cag ccc ctc agg tac ctt aag tat cgt acc aag acc cga gcc 610 Val Gln Gln Pro Leu Arg Tyr Leu Lys Tyr Arg Thr Lys Thr Arg Ala 135 140 tcg gcc acc att ctg ggg gcc tgg ttt ctc tct ttt ctg tgg gtt att 658 Ser Ala Thr Ile Leu Gly Ala Trp Phe Leu Ser Phe Leu Trp Val Ile ccc att cta ggc tgg aat cac ttc atg cag cag acc tcg gtg cgc cga 706 Pro Ile Leu Gly Trp Asn His Phe Met Gln Gln Thr Ser Val Arg Arg gag gac aag tgt gag aca gac ttc tat gat gtc acc tgg ttc aag gtc 754 Glu Asp Lys Cys Glu Thr Asp Phe Tyr Asp Val Thr Trp Phe Lys Val 180 atg act gcc atc atc aac ttc tac ctg ccc acc ttg ctc atg ctc tgg 802 Met Thr Ala Ile Ile Asn Phe Tyr Leu Pro Thr Leu Leu Met Leu Trp 195 ttc tat gcc aag atc tac aag gcc gta cga caa cac tgc cag cac cgg 850 Phe Tyr Ala Lys Ile Tyr Lys Ala Val Arg Gln His Cys Gln His Arg 898 gag etc atc aat agg tec etc ect tec tte tea gaa att aag etg agg Glu Leu Ile Asn Arg Ser Leu Pro Ser Phe Ser Glu Ile Lys Leu Arg 230 235 cca gag aac ccc aag ggg gat gcc aag aaa cca ggg aag gag tct ccc 946 Pro Glu Asn Pro Lys Gly Asp Ala Lys Lys Pro Gly Lys Glu Ser Pro 250 994 tgg gag gtt ctg aaa agg aag cca aaa gat gct ggt gga tct gtc Trp Glu Val Leu Lys Arg Lys Pro Lys Asp Ala Gly Gly Ser Val

Page 5

ttg Leu	aag Lys	tca Ser 275	cca Pro	tcc Ser	caa Gln	acc Thr	ccc	aag	1-12 gag Glu	atg	aaa	tcc	cca Pro	gtt Val	gtc Val	1042
ttc Phe	agc Ser 290	caa Gln	gag Glu	gat Asp	gat Asp	aga Arg 295	gaa Glu	gta Val	gac Asp	aaa Lys	ctc Leu 300	tac Tyr	tgc Cys	ttt Phe	cca Pro	1090 .
ctt Leu 305	gat Asp	att Ile	gtg Val	cac His	atg Met 310	cag Gln	gct Ala	gcg Ala	gca Ala	gag Glu 315	glà aaa	agt Ser	agc Ser	agg Arg	gac Asp 320	1138
tat Tyr	gta Val	gcc Ala	gtc Val	aac Asn 325	cgg Arg	agc Ser	cat His	ggc	cag Gln 330	ctc Leu	aag Lys	aca Thr	gat Asp	gag Glu 335	cag Gln	1186
ggc	ctg Leu	aac Asn	aca Thr 340	cat His	gjå aaa	gcc Ala	agc Ser	gag Glu 345	ata Ile	tca Ser	gag Glu	gat Asp	cag Gln 350	atg Met	tta Leu	1234
ggt Gly	gat Asp	agc Ser 355	Gln	tcc Ser	ttc Phe	tct Ser	cga Arg 360	acg Thr	gac Asp	tca Ser	gat Asp	acc Thr 365	Thr	aca Thr	gag Glu	1282
aca Thr	gca Ala 370	Pro	ggc Gly	aaa Lys	ggc	aaa Lys 375	ttg Leu	agg Arg	g agt g Ser	gly	tct Ser 380	Asn	aca Thr	ggc Gly	ctg Leu	1330
gat Asp 385	Туг	ato Ile	aag E Lys	ttt Phe	act Thr 390	Trp	aag Lys	agg Arg	g cto g Lev	cgc Arg 395	Ser	g cat His	tca Ser	aga Arg	cag Gln 400	1378
tat Tyr	gta Val	a tci L Se:	c Gly	y tto y Lev 40!	ı His	: atg : Met	aac Ası	cgo Arg	g gaa g Glu 410	ı Arç	g aag J Lys	g gco s Ala	gco A Ala	2 aaa 3 Lys 419	a cag s Gln 5	1426
tto Liei	ı Gl	t tt	t ato e Ilo 42	e Me	g gca	a gco a Ala	e tto a Pho	ate Il	e Lei	c tgo ı Cys	tgg Tr	g ato p Ilo	e pro 430	о Ту:	t ttc r Phe	1474
ato Ilo	e tto	c tt e Ph 43	e Me	g gt t Va	c ati	t gce e Ala	tte a Ph	е Су	c aag s Lyg	g aad s Asi	c tg n Cy	t tg s Cy 44	s As:	t ga n Gl	a cat u His	1522
tt: Le	g ca u Hi 45	s Me	g tt t Ph	c ac e Th	c at r Il	c tg e Tr 45	р Le	g gg u Gl	c ta y Ty	c ater Ile	c aa e As 46	n Se	c ac r Th	a ct r Le	g aac u Asn	1570
cc Pr 46	о Le	c at u Il	c ta e Ty	c co r Pr	c tt o Le 47	u Cy	c aa s As	t ga n Gl	ig aa .u As	c tt n Ph 47	е Гу	g aa s Ly	g ac s Th	a tt r Ph	c aag e Lys, 480	1618
					.e Ar			a gg	gagg	ctct	gag	iggga	itgc	aaca	aaatga	1672
to	ctta	tgat	gto	ccaa	aag	gaaa	taga	igg a	acgaa	ggcc	t gt	gtgt	tgcc	agg	gcaggcac	1732
															gttcttag	
										•					aggaggaa	
go	caga	atct	t tg	caag	aaag	tcag	gacc	tgt	ttcti	gtaa Page		gggt	tcaaa	a aa	gaaaaaaa	. 1912

49321-120.ST25.txt

taataaaaat aaaagagaga gagaatcaga cctgggtgga actctcctgc tcctcaggaa 1972 2032 ctatgggage etcagaetea ttgtaattea agettteega gteaagtgat tgacaactga agagacacgt ggctagggtt ccactggaga attgaaaagg actcttgagc cctcctggaa 2092 tggagctgta taactgtgca gagactttat ccatgccaat agttgctgtc cccttccagg 2152 2212 ggtcaccttg agaggcatga cagctgttcc acaggggcta tcccttctca gaaaacttct cttctgagcc tctttaacag ctttctccag aaccagtgtc tgaaccaccc tggaaattct 2272 gccttattat ttcttactca aacatgttta gagtggatag aaaattatgc agcttgcaca 2332 2392 cccatcatct ttaaccccaa atttcctttg gctattaaaa aagtggtggc aaaaggcatc ctcaaaagaa agagaaatga aatatttttg aatggttgca cgttaaaaaat taaaagaagg 2452 2512 aatgggggca gaatgccata tttttgaggg ctgtactagg tttatctcat ttaagcccca caacaccca caggagggta attttctaac tctagtttgc agaggagcaa attgaggttc 2572 2632 agcaaggtga gagaggtacc caaggtcaca tagctagtta tgtgagaaag ttagagtaca 2692 gatectetgg ggttteaget tattgtagea tattttetee gaaaggeaaa aatgtgeeet tttggccggg catggtagct caagcctata atcccagcat gttgagaggc tgaggtgggc 2752 2812 agatcatttq aggccaggag ttcaagacca gtctggccaa tatggagaaa ccttgtctct actaaaaaca caaaaattat ctgggcatgg tggggcatgc ctgtagtccc acttacttgg 2872 gaggccgagg cacgagaatc gcttgaaccc gggaggtgga ggttgccgtg agccaagatc 2932 2992 acgccactgc actccagcct gggcaacaga gcaagactct gtctcaaaaa aaaaaataca atattttaac aatgtgccct cttaagtgtg cacagataca catacacggt attcccaaga 3052 gtggtggcag ctcaaaatga tatgtttgag tagacgaaca gctgacatgg agttcccgtg 3112 cacctacgga aggggacgct ttgaaggaac caagtgcatt tttatctgtg agttctgttg 3172 tgtttgtcaa aaagtcattg taatctttca tagccatacc tggtaagcaa aaactagtaa 3232 agacatagga acatgtagtt ttacttggtg tttatgttgc aatctggttg tgatttatat 3292 tttaaagctt ggtgctaaac cacaatatgt atagcacatg gagtgcctgt acaagctgat 3352 gttttgtatt ttgtgttcct ctttgcatga tctgtcaaag tgagatattt ttacctgcct 3412 aaaatatgat gtttaaaagc atactctatg tgatttattt atttctacct ttctgagtct 3472 3532 cttggactaa gaagatgttt tgaaatgtac catcaaatgt taacagagtt tgatatgggc tttctctttg gtttctcatc acatttgtaa atgtcttttc aaaaggattt actttttgta 3592 aaaagettea tteteactet getttgeate eeccaaaett ettgtteaaa aeggggggag 3652 tttaggagac tttaatcccg gtttcagaag ctgcagctgg tctgtttcca ggtcagaaac 3712 cattgttcag aagacctccc tgtgagagag ttgctcctca gggtccctca ggaccaaaga 3772

49321-120.ST25.txt

acactcgaaa agagcacttc acacagacaa gtggctaagt gtccattatt taccttgaac

aatcaaggca actagtggag agaactgatt gtgagctc

3870

<210> 4

<211> 487 <212> PRT

<213> Homo sapiens

<400> 4

Met Ser Leu Pro Asn Ser Ser Cys Leu Leu Glu Asp Lys Met Cys Glu

Gly Asn Lys Thr Thr Met Ala Ser Pro Gln Leu Met Pro Leu Val Val 20

Val Leu Ser Thr Ile Cys Leu Val Thr Val Gly Leu Asn Leu Leu Val

Leu Tyr Ala Val Arg Ser Glu Arg Lys Leu His Thr Val Gly Asn Leu

Tyr Ile Val Ser Leu Ser Val Ala Asp Leu Ile Val Gly Ala Val Val

Met Pro Met Asn Ile Leu Tyr Leu Leu Met Ser Lys Trp Ser Leu Gly

Arg Pro Leu Cys Leu Phe Trp Leu Ser Met Asp Tyr Val Ala Ser Thr

Ala Ser Ile Phe Ser Val Phe Ile Leu Cys Ile Asp Arg Tyr Arg Ser 120 115

Val Gln Gln Pro Leu Arg Tyr Leu Lys Tyr Arg Thr Lys Thr Arg Ala 135 130

Ser Ala Thr Ile Leu Gly Ala Trp Phe Leu Ser Phe Leu Trp Val Ile 145

Pro Ile Leu Gly Trp Asn His Phe Met Gln Gln Thr Ser Val Arg Arg 165

Glu Asp Lys Cys Glu Thr Asp Phe Tyr Asp Val Thr Trp Phe Lys Val 185 180

Met Thr Ala Ile Ile Asn Phe Tyr Leu Pro Thr Leu Leu Met Leu Trp 200 195

49321-120.ST25.txt

Phe Tyr Ala Lys Ile Tyr Lys Ala Val Arg Gln His Cys Gln His Arg 210 215 220

Glu Leu Ile Asn Arg Ser Leu Pro Ser Phe Ser Glu Ile Lys Leu Arg 225 230 235 240

Pro Glu Asn Pro Lys Gly Asp Ala Lys Lys Pro Gly Lys Glu Ser Pro 245 250 255

Trp Glu Val Leu Lys Arg Lys Pro Lys Asp Ala Gly Gly Gly Ser Val 260 265 270

Leu Lys Ser Pro Ser Gln Thr Pro Lys Glu Met Lys Ser Pro Val Val 275 280 285

Phe Ser Gln Glu Asp Asp Arg Glu Val Asp Lys Leu Tyr Cys Phe Pro 290 295 300

Leu Asp Ile Val His Met Gln Ala Ala Glu Gly Ser Ser Arg Asp 305 310 315 320

Tyr Val Ala Val Asn Arg Ser His Gly Gln Leu Lys Thr Asp Glu Gln 325 330 335

Gly Leu Asn Thr His Gly Ala Ser Glu Ile Ser Glu Asp Gln Met Leu 340 345 350

Gly Asp Ser Gln Ser Phe Ser Arg Thr Asp Ser Asp Thr Thr Thr Glu 355 360 365

Thr Ala Pro Gly Lys Gly Lys Leu Arg Ser Gly Ser Asn Thr Gly Leu 370 375 380

Asp Tyr Ile Lys Phe Thr Trp Lys Arg Leu Arg Ser His Ser Arg Gln 385 390 395

Tyr Val Ser Gly Leu His Met Asn Arg Glu Arg Lys Ala Ala Lys Gln 405 410 415

Leu Gly Phe Ile Met Ala Ala Phe Ile Leu Cys Trp Ile Pro Tyr Phe 420 425 430

Ile Phe Phe Met Val Ile Ala Phe Cys Lys Asn Cys Cys Asn Glu His 435 440 445

Leu His Met Phe Thr Ile Trp Leu Gly Tyr Ile Asn Ser Thr Leu Asn 450 455

Page 9

49321-120.ST25.txt

Pro Leu Ile Tyr Pro Leu Cys Asn Glu Asn Phe Lys Lys Thr Phe Lys 465 470 475 480

Arg Ile Leu His Ile Arg Ser 485

<210> 5

<211> 3465

<212> DNA

<213> Homo sapiens

<400> 5 agtattggag tgttacaggg agacatacag gatttaagaa gcccatcatg gagaagacct 60 120 tcaattacaq aqataaaaaq tttttcttgt gaacaagtta cactagatgg aagataacag actgaggagt gagctgcttc tgactcgatt aaaaagggag tgagccataa ctggcggctg 180 240 ctcttgcgcc aatgagcctc cccaattcct cctgcctctt agaagacaag atgtgtgagg gcaacaagac cactatggcc agccccagc tgatgcccct ggtggtggtc ctgagcacta 300 360 tctgcttggt cacagtaggg ctcaacctgc tggtgctgta tgccgtacgg agtgagcgga 420 agetecacae tgtggggaae etgtacateg teageetete ggtggeggae ttgategtgg gtgccgtcgt catgcctatg aacatcctct acctgctcat gtccaagtgg tcactgggcc 480 540 gtectetetg cetettttgg etttecatgg actatgtgge cageacageg tecattttea 600 gtgtcttcat cctgtgcatt gatcgctacc gctctgtcca gcagcccctc aggtacctta agtatcgtac caagacccga gcctcggcca ccattctggg ggcctggttt ctctcttttc 660 720 tqtqqqttat tcccattcta qqctqqaatc acttcatqca gcagacctcg gtqcgccgag aggacaagtg tgagacagac ttctatgatg tcacctggtt caaggtcatg actgccatca 780 840 tcaacttcta cctqcccacc ttqctcatgc tctggttcta tgccaagatc tacaaggccg 900 tacgacaaca ctgccagcac cgggagctca tcaataggtc cctcccttcc ttctcagaaa 960 ttaagctqaq qccaqagaac cccaaggggg atgccaagaa accagggaag gagtctccct 1020 gggaggttct gaaaaggaag ccaaaagatg ctggtggtgg atctgtcttg aagtcaccat 1080 cccaaacccc caaggagatg aaatccccag ttgtcttcag ccaagaggat gatagagaag taqacaaact ctactgcttt ccacttgata ttgagcacat gcaggctgcg gcagagggga 1140 1200 gtagcaggga ctatgtagcc gtcaaccgga gccatggcca gctcaagaca gatgagcagg 1260 gcctgaacac acatggggcc agcgagatat cagaggatca gatgttaggt gatagccaat ccttctctcg aacggactca gataccacca cagagacagc accaggcaaa ggcaaattga 1320 ggagtgggtc taacacaggc ctggattaca tcaagtttac ttggaagagg ctccgctcgc 1380 1440 attcaagaca gtatgtatct gggttgcaca tgaaccgcga aaggaaggcc gccaaacagt

Page 10

49321-120.ST25.txt

tgggttttat catggcagcc ttcatcctct gctggatccc ttatttcatc ttcttcatgg 1500 tcattgcctt ctgcaagaac tgttgcaatg aacatttgca catgttcacc atctggctgg 1560 gctacatcaa ctccacactg aaccccctca tctacccctt gtgcaatgag aacttcaaga 1620 1680 agacattcaa gagaattctg catattcgct cctaagggag gctctgaggg gatgcaacaa aatgateett atgatgteea acaaggaaat agaggaegaa ggeetgtgtg ttgeeaggea 1740 ggcacctggg ctttctggaa tccaaaccac agtcttaggg gcttggtagt ttggaaagtt 1800 1860 cttaggcacc atagaagaac agcagatggc ggtgatcagc agagagattg aactttgagg aggaagcaga atctttgcaa gaaagtcaga cctgtttctt gtaactgggt tcaaaaagaa 1920 aaaaataata aaaataaaag agagagagaa tcagacctgg gtggaactct cctgctcctc 1980 aggaactatg ggagcctcag actcattgta attcaagctt tccgagtcaa gtgattgaca 2040 actgaagaga cacgtggcta gggttccact ggagaattga aaaggactct tgagccctcc 2100 2160 tggaatggag ctgtataact gtgcagagac tttatccatg ccaatagttg ctgtcccctt 2220 ccaggggtca ccttgagagg catgacagct gttccacagg ggctatccct tctcagaaaa 2280 cttctcttct gagcctcttt aacagctttc tccagaacca gtgtctgaac caccctggaa attctgcctt attatttctt actcaaacat gtttagagtg gatagaaaat tatgcagctt 2340 gcacacccat cgtctttaac cccaaatttc ctttggctat taaaaaagtg gtggcaaaag 2400 gcatcctcaa aagaaagaga aatgaaatat ttttgaatgg ttgcacgtta aaaattaaaa 2460 gaaggaatgg gggcagaatg ccatattttt gagggctgta ctaggtttat ctcatttaag 2520 ccccacaaca ccccacagga gggtaatttt ctaactctag tttgcagagg agcaaattga 2580 ggttcagcaa ggtgagagag gtacccaagg tcacatagct agttatgtga gaaagttaga 2640 gtacagatcc tctggggttt tcagcttatt gtagcatatt ttctccgaaa ggcaaaaatg 2700 tgcccttttg gccgggcatg gtagctcaag cctataatcc cagcatgttg agaggctgag 2760 gtgggcagat catttgaggc caggagttca agaccagtct ggccaatatg gagaaacctt 2820 2880 gtctctacta aaaacacaaa aattatctgg gcatggtggg gcatgcctgt agtcccactt 2940 acttgggagg ccgaggcacg agaatcgctt gaacccggga ggtggaggtt gccgtgagcc aagatcacgc cactgcactc cagcctgggc aacagagcaa gactctgtct caaaaaaaaa 3000 3060 aaatacaata ttttaacaat gtgccctctt aagtgtgcac agatacacat acacggtatt cccaagagtg gtggcagctc aaaatgatat gtttgagtag acgaacagcc gacatggagt 3120 tcccgtgcac ctacggaagg ggacgctttg aaggaaccaa gtgcattttt atctgtgagt 3180 tctgttgtgt ttgtcaaaaa gtcattgtaa tctttcatag ccatacctgg taagcaaaaa 3240 ctagtaaaga cataggaaca tgcagtttta cttggtgttt atgttgcaat ctggttgtga 3300

49321-120.ST25.txt tttatatttt aaagcttggt gctaaaccac aatatgtata gcacatggag tgcctgtaca	3360
agetgatgtt ttgtattttg tgttcctctt tgcatgatct gtcaaagtga gatattttta	3420
	3465
cctgcctaaa atatgatgtt taaaagcata aaaaaaaaaa	3403
<210> 6 <211> 1418 <212> DNA <213> Homo sapiens	
<220> <221> CDS <222> (110)(979)	
<400> 6 aactgtgcga accagacccg gcagccttgc tcagttcagc atagcggagc ggatccgatc	60
ggatcggagc acaccggagc aggctcatcg agaaggcgtc tgcgagacc atg gag aac Met Glu Asn 1	118
gga tac acc tat gaa gat tat aag aac act gca gaa tgg ctt ctg tct Gly Tyr Thr Tyr Glu Asp Tyr Lys Asn Thr Ala Glu Trp Leu Leu Ser 5 10 15	166
cat act aag cac cga cct caa gtt gca ata atc tgt ggt tct gga tta His Thr Lys His Arg Pro Gln Val Ala Ile Ile Cys Gly Ser Gly Leu 20 25 30 35	214
gga ggt ctg act gat aaa tta act cag gcc cag atc ttt gac tac agt Gly Gly Leu Thr Asp Lys Leu Thr Gln Ala Gln Ile Phe Asp Tyr Ser 40 45 50	262
gaa atc ccc aac ttt cct cga agt aca gtg cca ggt cat gct ggc cga Glu Ile Pro Asn Phe Pro Arg Ser Thr Val Pro Gly His Ala Gly Arg 55 60 65	310
ctg gtg ttt ggg ttc ctg aat ggc agg gcc tgt gtg atg atg cag ggc Leu Val Phe Gly Phe Leu Asn Gly Arg Ala Cys Val Met Met Gln Gly 70 75 80	358
agg ttc cac atg tat gaa ggg tac cca ctc tgg aag gtg aca ttc cca Arg Phe His Met Tyr Glu Gly Tyr Pro Leu Trp Lys Val Thr Phe Pro 85 90 95	406
gtg agg gtt ttc cac ctt ctg ggt gtg gac acc ctg gta gtc acc aat Val Arg Val Phe His Leu Leu Gly Val Asp Thr Leu Val Val Thr Asn 100 105 110	454
gca gca gga ggg ctg aac ccc aag ttt gag gtt gga gat atc atg ctg Ala Ala Gly Gly Leu Asn Pro Lys Phe Glu Val Gly Asp Ile Met Leu 120 125 130	502
atc cgt gac cat atc aac cta cct ggt ttc agt ggt cag aac cct ctc Ile Arg Asp His Ile Asn Leu Pro Gly Phe Ser Gly Gln Asn Pro Leu 135 140 145	550
aga ggg ccc aat gat gaa agg ttt gga gat cgt ttc cct gcc atg tct Arg Gly Pro Asn Asp Glu Arg Phe Gly Asp Arg Phe Pro Ala Met Ser 150 155 160	598

49321-120.ST25.txt

gat Asp	gcc Ala 165	tac Tyr	gac Asp	cgg Arg	act Thr	atg Met 170	agg Arg	cag Gln	agg Arg	gct Ala	ctc Leu 175	agt Ser	acc Thr	tgg Trp	aaa Lys	646
caa Gln 180	atg Met	gjå aaa	gag Glu	caa Gln	cgt Arg 185	gag Glu	cta Leu	cag Gln	gaa Glu	ggc Gly 190	acc Thr	tat Tyr	gtg Val	atg Met	gtg Val 195	694
gca Ala	gly	ccc Pro	agc Ser	ttt Phe 200	gag Glu	act Thr	gtg Val	gca Ala	gaa Glu 205	tgt Cys	cgt Arg	gtg Val	ctg Leu	cag Gln 210	aag Lys	742
ctg Leu	gga Gly	gca Ala	gac Asp 215	gct Ala	gtt Val	ggc	atg Met	agt Ser 220	Thr	gta Val	cca Pro	gaa Glu	gtt Val 225	ITe	gtt Val	790
gca Ala	cgg Arg	cac His 230	Cys	gga Gly	ctt Leu	cga Arg	gtc Val 235	Phe	ggc	ttc Phe	tca Ser	ctc Leu 240	ILE	act Thr	aac Asn	838
aag Lys	gtc Val 245	Ile	atg Met	gat Asp	tat Tyr	gaa Glu 250	Ser	ctg Lev	gag Glu	aag Lys	gcc Ala 255	. Asr	cat His	gaa Glu	ı gaa ı Glu	886
gto Val 260	Leu	gca LAla	gct Ala	. ggc	265	Glr	gct Ala	gca Ala	a cag a Glr	g aaa 1 Lys 270	s Lev	g gaa 1 Glu	a cag a Glr	ttt 1 Pþe	gtc Val 275	934
tcc Ser	att Ile	ctt Lev	ato 1 Met	g gcc : Ala 280	a Sei	att c Ile	e Pro	a cto	c cct u Pro 28!	raA c	c aaa o Lys	a gco s Ala	a gt a Sei	tg: r	a	979
cct	gcct	tgg	agto	egte	tgg (catc	taca	ac a	caag	accc	a ag	tagc	tgct	acc	ttctttg	1039
gc	cccti	tgct	gga	gtca	tgt (gcct	ctgt	cc t	tagg	ttgt	a gc	agaa	agga	aaa	gattcct	1099
gto	catt	cacc	ttt	ccca	ctt	tctt	ctac	ca g	accc	ttct	g gt	gcca	gatc	ctc	ttctcaa	1159
ag	ctgg	gatt	aca	ggtg	tga	gcat	agtg	ag a	cctt	ggcg	c ta	caaa	ataa	ago	tgttctc	1219
at	tcct	gttc	ttt	ctta	cac	aaga	gctg	ga g	cccg	tgcc	c ta	.ccac	acat	ctg	tggagat	1279
gc	ccag	gatt	tga	ctcg	ggc	ctta	gaac	tt t	gcat	agca	ıg ct	gcta	ctag	ctc	tttgaga	1339
ta	atac	atto	cga	9999	gctc	agtt	ctgo	ct t	atct	aaat	c ac	caga	gaco	aaa	caaggac	1399
ta	atcc	aata	cct	ctts	ga											1418

<210> 7 <211> 289 <212> PRT <213> Homo sapiens

Met Glu Asn Gly Tyr Thr Tyr Glu Asp Tyr Lys Asn Thr Ala Glu Trp 1 5 10 15

Leu Leu Ser His Thr Lys His Arg Pro Gln Val Ala Ile Ile Cys Gly 25

49321-120.ST25.txt

Ser Gly Leu Gly Gly Leu Thr Asp Lys Leu Thr Gln Ala Gln Ile Phe 35 40 45

Asp Tyr Ser Glu Ile Pro Asn Phe Pro Arg Ser Thr Val Pro Gly His 50 55 60

Ala Gly Arg Leu Val Phe Gly Phe Leu Asn Gly Arg Ala Cys Val Met 70 75 80

Met Gln Gly Arg Phe His Met Tyr Glu Gly Tyr Pro Leu Trp Lys Val

Thr Phe Pro Val Arg Val Phe His Leu Leu Gly Val Asp Thr Leu Val

Val Thr Asn Ala Ala Gly Gly Leu Asn Pro Lys Phe Glu Val Gly Asp 115 120 125

Ile Met Leu Ile Arg Asp His Ile Asn Leu Pro Gly Phe Ser Gly Gln 130 135 140

Asn Pro Leu Arg Gly Pro Asn Asp Glu Arg Phe Gly Asp Arg Phe Pro 145 150 155 160

Ala Met Ser Asp Ala Tyr Asp Arg Thr Met Arg Gln Arg Ala Leu Ser 165 170 175

Thr Trp Lys Gln Met Gly Glu Gln Arg Glu Leu Gln Glu Gly Thr Tyr 180 185 190 ,

Val Met Val Ala Gly Pro Ser Phe Glu Thr Val Ala Glu Cys Arg Val 195 200 205

Leu Gln Lys Leu Gly Ala Asp Ala Val Gly Met Ser Thr Val Pro Glu 210 215 220

Val Ile Val Ala Arg His Cys Gly Leu Arg Val Phe Gly Phe Ser Leu 225 230 235 240

Ile Thr Asn Lys Val Ile Met Asp Tyr Glu Ser Leu Glu Lys Ala Asn 245 250 255

His Glu Glu Val Leu Ala Ala Gly Lys Gln Ala Ala Gln Lys Leu Glu 260 265 270

Gln Phe Val Ser Ile Leu Met Ala Ser Ile Pro Leu Pro Asp Lys Ala Page 14

49321-120.ST25.txt 275 280 285

Ser

<210> 8 <211> 4343 <212> DNA <213> Homo sapiens												
<220> <221> CDS <222> (11)(1642)												
<pre><400> 8 agatttgata atg ggc tgc att aaa agt aaa gaa aac aaa agt cca gcc</pre>												
att aaa tac aga cct gaa aat act cca gag cct gtc agt aca agt gtg Ile Lys Tyr Arg Pro Glu Asn Thr Pro Glu Pro Val Ser Thr Ser Val 15 20 25	97											
agc cat tat gga gca gaa ccc act aca gtg tca cca tgt ccg tca tct Ser His Tyr Gly Ala Glu Pro Thr Thr Val Ser Pro Cys Pro Ser Ser 30 35 40 45	145											
tca gca aag gga aca gca gtt aat ttc agc agt ctt tcc atg aca cca Ser Ala Lys Gly Thr Ala Val Asn Phe Ser Ser Leu Ser Met Thr Pro 50 55 60	193											
ttt gga gga tcc tca ggg gta acg cct ttt gga ggt gca tct tcc tca Phe Gly Gly Ser Ser Gly Val Thr Pro Phe Gly Gly Ala Ser Ser Ser 65 70 75	241											
ttt tca gtg gtg cca agt tca tat cct gct ggt tta aca ggt ggt gtt Phe Ser Val Val Pro Ser Ser Tyr Pro Ala Gly Leu Thr Gly Gly Val 80 85 90	289											
act ata ttt gtg gcc tta tat gat tat gaa gct aga act aca gaa gac Thr Ile Phe Val Ala Leu Tyr Asp Tyr Glu Ala Arg Thr Thr Glu Asp 95 100 105	337											
ctt tca ttt aag aag ggt gaa aga ttt caa ata att aac aat acg gaa Leu Ser Phe Lys Lys Gly Glu Arg Phe Gln Ile Ile Asn Asn Thr Glu 110 115 120 125	385											
gga gat tgg tgg gaa gca aga tca atc gct aca gga aag aat ggt tat Gly Asp Trp Trp Glu Ala Arg Ser Ile Ala Thr Gly Lys Asn Gly Tyr 130 135 140	433											
atc ccg agc aat tat gta gcg cct gca gat tcc att cag gca gaa gaa Ile Pro Ser Asn Tyr Val Ala Pro Ala Asp Ser Ile Gln Ala Glu Glu 145 150 155	481											
tgg tat ttt ggc aaa atg ggg aga aaa gat gct gaa aga tta ctt ttg Trp Tyr Phe Gly Lys Met Gly Arg Lys Asp Ala Glu Arg Leu Leu 160 165 170	529											
aat oot gga aat caa oga ggt att tto tta gta aga gag agt gaa aca Page 15	577											

49321-120.ST25.txt Asn Pro Gly Asn Gln Arg Gly Ile Phe Leu Val Arg Glu Ser Glu Thr 175 180 185

act aaa ggt gct tat tcc ctt tct att cgt gat tgg gat gag ata agg
Thr Lys Gly Ala Tyr Ser Leu Ser Ile Arg Asp Trp Asp Glu Ile Arg
190 195 200 205

ggt gac aat gtg aaa cac tac aaa att agg aaa ctt gac aat ggt gga 673 Gly Asp Asn Val Lys His Tyr Lys Ile Arg Lys Leu Asp Asn Gly Gly

tac tat atc aca acc aga gca caa ttt gat act ctg cag aaa ttg gtg

Tyr Tyr Ile Thr Thr Arg Ala Gln Phe Asp Thr Leu Gln Lys Leu Val

225 230 235

aaa cac tac aca gaa cat gct gat ggt tta tgc cac aag ttg aca act
Lys His Tyr Thr Glu His Ala Asp Gly Leu Cys His Lys Leu Thr Thr
240 245 250

gtg tgt cca act gtg aaa cct cag act caa ggt cta gca aaa gat gct
Val Cys Pro Thr Val Lys Pro Gln Thr Gln Gly Leu Ala Lys Asp Ala
255 260 265

tgg gaa atc cct cga gaa tct ttg cga cta gag gtt aaa cta gga caa 865 Trp Glu Ile Pro Arg Glu Ser Leu Arg Leu Glu Val Lys Leu Gly Gln 270 275 280 285

gga tgt ttc ggc gaa gtg tgg atg gga aca tgg aat gga acc acg aaa 913 Gly Cys Phe Gly Glu Val Trp Met Gly Thr Trp Asn Gly Thr Thr Lys 290 295 300

gta gca atc aaa aca cta aaa cca ggt aca atg atg cca gaa gct ttc 961 Val Ala Ile Lys Thr Leu Lys Pro Gly Thr Met Met Pro Glu Ala Phe 305 310 315

ctt caa gaa gct cag ata atg aaa aaa tta aga cat gat aaa ctt gtt
Leu Gln Glu Ala Gln Ile Met Lys Lys Leu Arg His Asp Lys Leu Val
320 325 330

cca cta tat gct gtt gtt tct gaa gaa cca att tac att gtc act gaa 1057
Pro Leu Tyr Ala Val Val Ser Glu Glu Pro Ile Tyr Ile Val Thr Glu
335 340 345

ttt atg tca aaa gga agc tta tta gat ttc ctt aag gaa gga gat gga 1105 Phe Met Ser Lys Gly Ser Leu Leu Asp Phe Leu Lys Glu Gly Asp Gly 350 365 360

aag tat ttg aag ctt cca cag ctg gtt gat atg gct gct cag att gct
Lys Tyr Leu Lys Leu Pro Gln Leu Val Asp Met Ala Ala Gln Ile Ala
370 380

gat ggt atg gca tat att gaa aga atg aac tat att cac cga gat ctt
Asp Gly Met Ala Tyr Ile Glu Arg Met Asn Tyr Ile His Arg Asp Leu
385
390
395

cgg gct gct aat att ctt gta gga gaa aat ctt gtg tgc aaa ata gca 1249 Arg Ala Asn Ile Leu Val Gly Glu Asn Leu Val Cys Lys Ile Ala 400 405 410

gac ttt ggt tta gca agg tta att gaa gac aat gaa tac aca gca aga
Asp Phe Gly Leu Ala Arg Leu Ile Glu Asp Asn Glu Tyr Thr Ala Arg
415
420
425

caa Gln 430	ggt Gly	gca Ala	aaa Lys	tţt Phe	cca Pro 435	atc Ile	aaa Lys	tag	1-12 aca Thr	gct	cct	gaa	gct Ala	gca Ala	ctg Leu 445	1345
tat Tyr	ggt Gly	cgg Arg	ttt Phe	aca Thr 450	ata Ile	aag Lys	tct Ser	gat Asp	gtc Val 455	tgg Trp	tca Ser	ttt Phe	gga Gly	att Ile 460	ctg Leu	1393
caa Gln	aca Thr	gaa Glu	cta Leu 465	gta Val	aca Thr	aag Lys	gly	cga Arg 470	gtg Val	cca Pro	tat Tyr	cca Pro	ggt Gly 475	atg Met	gtg Val	1441
aac Asn	cgt Arg	gaa Glu 480	Val	cta Leu	gaa Glu	caa Gln	gtg Val 485	Glu	cga Arg	gga Gly	tac Tyr	agg Arg 490	Met	ccg Pro	tgc Cys	1489
cct Pro	cag Gln 495	Gly	tgt Cys	cca Pro	gaa Glu	tcc Ser 500	Leu	cat His	gaa Glu	ttg Leu	atg Met 505	Asr	ctg Leu	tgt Cys	tgg Trp	1537
aag Lys 510	Lys	gac Asp	cct Pro	gat Asp	gaa Glu 515	Arg	cca Pro	aca Thr	ttt Phe	gaa Glu 520	туг	att Ile	cag Glr	tco Ser	ttc Phe 525	1585
ttg Lev	gaa Glu	ı gad ı Ası	tac Tyi	tto Phe 530	e Thr	gct Ala	aca Thi	a gag r Glu	g cca ı Pro 535	Glr	tao Ty:	c caq r Gl:	g cca n Pro	a gga o Gly 540	a gaa / Glu)	1633
	tta Lei		a tto	caagt	agc	ctat	ttt	ata 1	tgcad	caaat	e t	gcca	aaati	a		1682
taa	aagaa	actt	gtg	taga	ttt '	tcta	cagg	aa t	caaa	agaa	g aa	aatc	ttct	tta	ctctgca	1742
tg	tttt	taat	ggt	aaac	tgg	aatc	ccag	at a	tggt	tgca	c aa	aacc	actt	ttt	tttcccc	1802
aa	gtat	taaa	ctc	taat	gta	ccaa	tgat	ga a	ttta	tcag	c gt	attt	cagg	gtc	caaacaa	1862
aa	taga	gcta	aga	tact	gat	gaca	gtgt	gg g	tgac	agca	t gg	taat	gaag	gad	agtgagg	1922
ct	cctg	ctta	ttt	ataa	atc	attt	.cctt	tc t	tttt	ttcc	c ca	ıaagt	caga	att	.gctcaaa	1982
ga	aaat	tatt	tat	tgtt	aca	gata	aaac	ett g	gagag	ataa	a aa	agcta	taco	: ata	ataaaat	2042
															tttcttg	2102
															taatatat	
															atctcaaa	
															attaatat	
	-														gaagagtt	
to	gacti	taga	a ta	atga	aggt	aac	taga	aag	tgag	ttaa	tc t	tgta	tgag	g tt	gcattgat	2402
ti	tttt	aagg	c aa	tata	taat	tga	aact	act	gtcc	aatc	aa a	9999	aaat	g tt	ttgatctt	2462
															agacttc	
															aatatga	
С	agat	cagg	g ac	ttga	atgo	act	tttg	gctc	atgg	tgaa Page	ta t = 17	agat	gaac	a ga	gaggaaa	a 2642

49321-120.ST25.txt

tgtatttaaa agaaatacga gaaaagaaaa tgtgaaagtt ttacaagtta gagggatgga 2	2702
aggtaatgtt taatgttgat gtcatggagt gacagaatgg ctttgctggc actcagagct 2	2762
cctcacttag ctatattctg agactttgaa gagttataaa gtataactat aaaactaatt 2	2822
tttcttacac actaaatggg tatttgttca aaataatgaa gttatggctt cacattcatt	2882
gcagtgggat atggttttta tgtaaaacat ttttagaact ccagttttca aatcatgttt 2	2942
gaatctacat tcactttttt ttgttttctt ttttgagacg gagtctcgct ctgccgccca	3002
ggctggagtg cagtggcgcg atctcggctc actgcaagct ctgcctccca ggttcacacc	3062
attetectge etcageetee egagtagetg ggaetacagg tgeecaceae caegeetgge	3122
tagttttttg tatttttagt agagacgcag tttcaccgtg ttagccagga tggtctcgat	3182
ctcctgacct tgtgatctgc ccgcctcggc ctcccaaagt gctgggatta caggcgtgag	3242
ccaccgcgcc cagcctacat tcacttctaa agtctatgta atggtggtca ttttttccct	3302
tttagaatac attaaatggt tgatttgggg aggaaaactt attctgaata ttaacggtgg	3362
tgaaaagggg acagttttta ccctaaagtg caaaagtgaa acatacaaaa taagactaat	3422
ttttaagagt aactcagtaa tttcaaaata cagatttgaa tagcagcatt agtggtttga	3482
gtgtctagca aaggaaaaat tgatgaataa aatgaaggtc tggtgtatat gttttaaaat	3542
actctcatat agtcacactt taaattaagc cttatattag gcccctctat tttcaggata	3602
taattottaa otatoattat ttaootgatt ttaatoatoa gattogaaat totgtgooat	3662
ggcgtatatg ttcaaattca aaccattttt aaaatgtgaa gatggacttc atgcaagttg	3722
gcagtggttc tggtactaaa aattgtggtt gttttttctg tttacgtaac ctgcttagta	3782
ttgacactct ctaccaagag ggtcttccta agaagagtgc tgtcattatt tcctcttatc	3842
aacaacttgt gacatgagat tttttaaggg ctttatgtga actatgatat tgtaattttt	3902
ctaagcatat tcaaaagggt gacaaaatta cgtttatgta ctaaatctaa tcaggaaagt	3962
aaggcaggaa aagttgatgg tattcattag gttttaactg aatggagcag ttccttatat	4022
aataacaatt gtatagtagg gataaaacac taacttaatg tgtattcatt ttaaattgtt	4082
ctýtattttt aaattgccaa gaaaaacaac tttgtaaatt tggagatatt ttccaacagc	4142
ttttcgtctt cagtgtctta atgtggaagt taacccttac caaaaaagga agttggcaaa	4202
aacagcette tagcacaett ttttaaatga ataatggtag eetaaaetta atatttttat	4262
aaagtattgt aatattgttt tgtggataat tgaaataaaa agttctcatt gaatgcacct	4322
attaaaaaaa aaaaaaaaa a	4343

<210> 9 <211> 543 <212> PRT

49321-120.ST25.txt

<213> Homo sapiens

<400> 9

Met Gly Cys Ile Lys Ser Lys Glu Asn Lys Ser Pro Ala Ile Lys Tyr
1 5 10 15

Arg Pro Glu Asn Thr Pro Glu Pro Val Ser Thr Ser Val Ser His Tyr 20 25 30

Gly Ala Glu Pro Thr Thr Val Ser Pro Cys Pro Ser Ser Ser Ala Lys 35 40 45

Gly Thr Ala Val Asn Phe Ser Ser Leu Ser Met Thr Pro Phe Gly Gly 50 55 60

Ser Ser Gly Val Thr Pro Phe Gly Gly Ala Ser Ser Ser Phe Ser Val 65 70 75 80

Val Pro Ser Ser Tyr Pro Ala Gly Leu Thr Gly Gly Val Thr Ile Phe 85 90 95

Val Ala Leu Tyr Asp Tyr Glu Ala Arg Thr Thr Glu Asp Leu Ser Phe 100 105 110

Lys Lys Gly Glu Arg Phe Gln Ile Ile Asn Asn Thr Glu Gly Asp Trp

Trp Glu Ala Arg Ser Ile Ala Thr Gly Lys Asn Gly Tyr Ile Pro Ser 130 135 140

Asn Tyr Val Ala Pro Ala Asp Ser Ile Gln Ala Glu Glu Trp Tyr Phe 145 150 155 160

Gly Lys Met Gly Arg Lys Asp Ala Glu Arg Leu Leu Leu Asn Pro Gly 165 170 175

Asn Gln Arg Gly Ile Phe Leu Val Arg Glu Ser Glu Thr Thr Lys Gly 180 185 190

Ala Tyr Ser Leu Ser Ile Arg Asp Trp Asp Glu Ile Arg Gly Asp Asn 195 200 205

Val Lys His Tyr Lys Ile Arg Lys Leu Asp Asn Gly Gly Tyr Tyr Ile 210 215 220

Thr Thr Arg Ala Gln Phe Asp Thr Leu Gln Lys Leu Val Lys His Tyr 225 230 235 240

49321-120.ST25.txt

Thr Glu His Ala Asp Gly Leu Cys His Lys Leu Thr Thr Val Cys Pro 245 250 255

Thr Val Lys Pro Gln Thr Gln Gly Leu Ala Lys Asp Ala Trp Glu Ile 260 265 270

Pro Arg Glu Ser Leu Arg Leu Glu Val Lys Leu Gly Gln Gly Cys Phe 275 280 285

Gly Glu Val Trp Met Gly Thr Trp Asn Gly Thr Thr Lys Val Ala Ile 290 295 300

Lys Thr Leu Lys Pro Gly Thr Met Met Pro Glu Ala Phe Leu Gln Glu 305 310 315 320

Ala Gln Ile Met Lys Lys Leu Arg His Asp Lys Leu Val Pro Leu Tyr 325 330 335

Ala Val Val Ser Glu Glu Pro Ile Tyr Ile Val Thr Glu Phe Met Ser 340 345 350

Lys Gly Ser Leu Leu Asp Phe Leu Lys Glu Gly Asp Gly Lys Tyr Leu 355 360 365

Lys Leu Pro Gln Leu Val Asp Met Ala Ala Gln Ile Ala Asp Gly Met 370 375 380

Ala Tyr Ile Glu Arg Met Asn Tyr Ile His Arg Asp Leu Arg Ala Ala 385 390 395 400

Asn Ile Leu Val Gly Glu Asn Leu Val Cys Lys Ile Ala Asp Phe Gly 405 410 415

Leu Ala Arg Leu Ile Glu Asp Asn Glu Tyr Thr Ala Arg Gln Gly Ala 420 425 430

Lys Phe Pro Ile Lys Trp Thr Ala Pro Glu Ala Ala Leu Tyr Gly Arg 435 440 445

Phe Thr Ile Lys Ser Asp Val Trp Ser Phe Gly Ile Leu Gln Thr Glu 450 455 460

Leu Val Thr Lys Gly Arg Val Pro Tyr Pro Gly Met Val Asn Arg Glu 465 470 475 480

Val Leu Glu Gln Val Glu Arg Gly Tyr Arg Met Pro Cys Pro Gln Gly
485 490 495

49321-120.ST25.txt

Cys Pro Glu Ser Leu His Glu Leu Met Asn Leu Cys Trp Lys Lys Asp 500 505 510

Pro Asp Glu Arg Pro Thr Phe Glu Tyr Ile Gln Ser Phe Leu Glu Asp 515 520 525

Tyr Phe Thr Ala Thr Glu Pro Gln Tyr Gln Pro Gly Glu Asn Leu 530 535 540

<210> 10 <211> 25 <212> DNA

<213> artificial sequence

<220>

<223> HMG20B PMO antisense oligomer

<400> 10

cgcccagcat cttggtgatc tcggg 25

<210> 11 <211> 25 <212> DNA

<213> artificial sequence

<220>

<223> HRH1-specific PMO antisense oligo

<400> 11

gcgaaagagc agccgccagt tatgg 25

<210> 12 <211> 25 <212> DNA <213> artificial sequence <220>

<223> NP-specific PMO antisense oligo

<400> 12

cttcataggt gtatccgttc tccat 25

<210> 13 <211> 25 <212> DNA <213> artificial sequence <220> <223> YES-specific PMO antisense oligo <400> 13

tttctttact tttaatgcag cccat 25

<210> 14

49321-120.ST25.txt

<211> <212> <213>	DNA artificial sequence	
<220> <223>	ARF1-specific PMO antisense oligo	
<400>	14 gtgg acaggtggaa ggaca	25
	5055	
<210> <211>	15 21	
<212>		
<213>	Homo sapiens	
	15 uuuu ggaggugcau c	21
<210>		
<211><212>		
	Homo sapiens	
<400>	16	
	cuuuu ggaggugcau c	21
<210>	17	
	4343	
<212>	KNA Homo sapiens	
12207		
<220>		
<221>	misc_feature	
<222>	(214)(234)	
<223>	region corresponding to siRNA-214	
<220>		
	misc_feature (318)(338)	
<223>	region corresponding to siRNA-318	
<400>	. 17	
agauu	nugaua augggcugca uuaaaaguaa agaaaacaaa aguccagcca uuaaauacag	60
accug	gaaaau acuccagagc cugucaguac aagugugagc cauuauggag cagaacccac	120
uacaç	guguca ccauguccgu caucuucagc aaagggaaca gcaguuaauu ucagcagucu	180
uucca	augaca ccauuuggag gauccucagg gguaacgccu uuuggaggug caucuuccuc	240
auuui	ucagug gugccaaguu cauauccugc ugguuuaaca ggugguguua cuauauuugu	300
ggccı	uuauau gauuaugaag cuagaacuac agaagaccuu ucauuuaaga agggugaaag	360
auuu	caaaua auuaacaaua cggaaggaga uuggugggaa gcaagaucaa ucgcuacagg	420
aaag	aauggu uauaucccga gcaauuaugu agcgccugca gauuccauuc aggcagaaga	480
augg	uauuuu ggcaaaaugg ggagaaaaga ugcugaaaga uuacuuuuga auccuggaaa	540
	Page 22	

49321-120.ST25.txt

600 ucaacgaggu auuuucuuag uaagagagag ugaaacaacu aaaggugcuu auucccuuuc uauucgugau ugggaugaga uaagggguga caaugugaaa cacuacaaaa uuaggaaacu 660 720 ugacaauggu ggauacuaua ucacaaccag agcacaauuu gauacucugc agaaauuggu gaaacacuac acagaacaug cugaugguuu augccacaag uugacaacug uguguccaac 780 ugugaaaccu cagacucaag gucuagcaaa agaugcuugg gaaaucccuc gagaaucuuu 840 900 gcgacuagag guuaaacuag gacaaggaug uuucggcgaa guguggaugg gaacauggaa uggaaccacg aaaguagcaa ucaaaacacu aaaaccaggu acaaugaugc cagaagcuuu 960 1020 ccuucaagaa gcucagauaa ugaaaaaauu aagacaugau aaacuuguuc cacuauaugc uguuguuucu gaagaaccaa uuuacauugu cacugaauuu augucaaaag gaagcuuauu 1080 1140 agauuuccuu aaggaaggag auggaaagua uuugaagcuu ccacagcugg uugauauggc ugcucagauu gcugauggua uggcauauau ugaaagaaug aacuauauuc accgagaucu 1200 1260 ucgggcugcu aauauucuug uaggagaaaa ucuugugugc aaaauagcag acuuugguuu 1320 agcaagguua auugaagaca augaauacac agcaagacaa ggugcaaaau uuccaaucaa auggacagcu ccugaagcug cacuguaugg ucgguuuaca auaaagucug augucugguc 1380 1440 auuuggaauu cugcaaacag aacuaguaac aaagggccga gugccauauc cagguauggu 1500 gaaccgugaa guacuagaac aaguggagcg aggauacagg augccgugcc cucagggcug uccagaaucc cuccaugaau ugaugaaucu guguuggaag aaggacccug augaaagacc 1560 1620 aacauuugaa uauauucagu ccuucuugga agacuacuuc acugcuacag agccacagua ccagccagga gaaaauuuau aauucaagua gccuauuuua uaugcacaaa ucugccaaaa 1680 1740 uauaaagaac uuguguagau uuucuacagg aaucaaaaga agaaaaucuu cuuuacucug cauguuuuua augguaaacu ggaaucccag auaugguugc acaaaaccac uuuuuuuucc 1800 1860 ccaaguauua aacucuaaug uaccaaugau gaauuuauca gcguauuuca ggguccaaac 1920 aaaauagagc uaagauacug augacagugu gggugacagc augguaauga aggacaguga 1980 ggcuccugcu uauuuauaaa ucauuuccuu ucuuuuuuuc cccaaaguca gaauugcuca 2040 aagaaaauua uuuauuguua cagauaaaac uugagagaua aaaagcuaua ccauaauaaa 2100 aucuaaaauu aaggaauauc augggaccaa auaauuccau uccaguuuuu uaaaguuucu 2160 ugcauuuauu auucucaaaa guuuuuucua aguuaaacag ucaguaugca aucuuaauau augcuuucuu uugcauggac augggccagg uuuuucaaaa ggaauauaaa caggaucuca 2220 2280 aacuugauua aauguuagac cacagaagug gaauuugaaa guauaaugca guacauuaau 2340 auucauquuc auggaacuga aagaauaaga acuuuuucac uucaguccuu uucugaagag uuugacuuag aauaaugaag guaacuagaa agugaguuaa ucuuguauga gguugcauug 2400

49321-120.ST25.txt

auuuuuuaag gcaauauaua auugaaacua cuguccaauc aaaggggaaa uguuuugauc 2460 uuuagauagc augcaaagua agacccagca uuuuaaaagc ccuuuuuaaa aacuagacuu 2520 2580 cguacuguga guauugcuua uauguccuua uggggauggg ugccacaaau agaaaauaug accagaucag ggacuugaau gcacuuuugc ucauggugaa uauagaugaa cagagaggaa 2640 2700 aauguauuua aaagaaauac gagaaaagaa aaugugaaag uuuuacaagu uagagggaug gaagguaaug uuuaauguug augucaugga gugacagaau ggcuuugcug gcacucagag 2760 2820 cuccucacuu agcuauauuc ugagacuuug aagaguuaua aaguauaacu auaaaacuaa uuuuucuuac acacuaaaug gguauuuguu caaaauaaug aaguuauggc uucacauuca 2880 uugcaguggg auaugguuuu uauguaaaac auuuuuagaa cuccaguuuu caaaucaugu 2940 3000 uugaaucuac auucacuuuu uuuuguuuuc uuuuuugaga cggagucucg cucugccgcc caggcuggag ugcaguggcg cgaucucggc ucacugcaag cucugccucc cagguucaca 3060 3120 ccauucuccu qccucaqccu cccgaguage ugggacuaca ggugcccacc accacgccug gcuaguuuuu uguauuuuua guagagacgc aguuucaccg uguuagccag gauggucucg 3180 aucuccugac cuugugaucu geeegeeueg geeueeeaaa gugeugggau uacaggegug 3240 agccaccgcg cccagccuac auucacuucu aaagucuaug uaaugguggu cauuuuuucc 3300 3360 cuuuuagaau acauuaaaug guugauuugg ggaggaaaac uuauucugaa uauuaacggu 3420 ggugaaaagg ggacaguuuu uacccuaaag ugcaaaagug aaacauacaa aauaagacua 3480 auuuuuaaga guaacucagu aauuucaaaa uacagauuug aauagcagca uuagugguuu gagugucuag caaaggaaaa auugaugaau aaaaugaagg ucugguguau auguuuuaaa 3540 3600 auacucucau auagucacac uuuaaauuaa gccuuauauu aggccccucu auuuucagga uauaauucuu aacuaucauu auuuaccuga uuuuaaucau cagauucgaa auucugugcc 3660 3720 auggcguaua uguucaaauu caaaccauuu uuaaaaugug aagauggacu ucaugcaagu 3780 uggcaguggu ucugguacua aaaauugugg uuguuuuuuc uguuuacgua accugcuuag 3840 uauugacacu cucuaccaag agggucuucc uaagaagagu gcugucauua uuuccucuua 3900 ucaacaacuu gugacaugag auuuuuuaag ggcuuuaugu gaacuaugau auuguaauuu 3960 uucuaagcau auucaaaagg gugacaaaau uacguuuaug uacuaaaucu aaucaggaaa guaaggcagg aaaaguugau gguauucauu agguuuuaac ugaauggagc aguuccuuau 4020 4080 auaauaacaa uuguauagua gggauaaaac acuaacuuaa uguguauuca uuuuaaauug uucuguauuu uuaaauugcc aagaaaaaca acuuuguaaa uuuggagaua uuuuccaaca 4140 4200 gcuuuucguc uucagugucu uaauguggaa guuaacccuu accaaaaaag gaaguuggca aaaacagccu ucuagcacac uuuuuuaaau gaauaauggu agccuaaacu uaauauuuuu 4260 4320 auaaaguauu guaauauugu uuuguggaua auugaaauaa aaaguucuca uugaaugcac Page 24

49321-120.ST25.txt

cuauuaaaaa aaaaaaaaaa aaa

4343